

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2025

(Regular/Improvement/Supplementary)

BOTANY: Complementary Course for Zoology

GBOT4C04T: PLANT PHYSIOLOGY, ECOLOGY AND GENETICS

Time: 2 Hours

Maximum Marks: 60

SECTION A: Answer the following questions. Each carries *two* marks.

(Ceiling 20 marks)

1. What is Kranz anatomy?
2. Mention the processes of osmosis in the context of water relations in plants.
3. Differentiate between active and passive transport in plants.
4. Discuss the Root pressure theory and the Transpiration pull in the context of the ascent of sap.
5. Explain anti-transpirants? Give examples.
6. Comment on vernalization.
7. Explain the methods of studying plant nutrition with a focus on solution culture.
8. What are haustoria? Mention its physiological importance.
9. Differentiate between test cross and back cross.
10. Give an account of ATPase.
11. State the two pigment systems involved in photosynthesis and describe the Emerson enhancement effect.
12. What are complementary genes? Give example.

SECTION B: Answer the following questions. Each carries *five* marks.

(Ceiling 30 marks)

13. Give an account of non-cyclic photophosphorylation.
14. Write in detail about the adaptations of xerophytes.
15. What is dominant epistasis? Explain with an example.
16. List out the roles played by gibberellins in plant development.
17. Provide a comprehensive definition of plant growth and discuss the phases of growth.
18. Briefly explain the dihybrid cross conducted by Mendel. Add a note on the discovery of law of independent assortment.
19. Give an account of the causes and methods to overcome seed dormancy.

SECTION C: Answer any *one* question. The question carries *ten* marks.

20. Define plant succession. Describe the stages of hydrosere in detail with suitable plant examples.
21. With the help of schematic diagram describe the path of carbon in Photosynthesis.

(1 × 10 = 10 Marks)